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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/725,286	10/07/2004	Cecilia Larsson	21547-00261-US1	1825

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CONNOLLY BOVE LODGE & HUTZ LLP  
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WILMINGTON, DE 19899-2207

EXAMINER
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SCHILLINGER, ANN M

ART UNIT	PAPER NUMBER
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3738

MAIL DATE	DELIVERY MODE
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04/30/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

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<b>Office Action Summary</b>	<b>Application No.</b> 10/725,286	<b>Applicant(s)</b> LARSSON ET AL.	
	<b>Examiner</b> Ann Schillinger	<b>Art Unit</b> 3738	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 December 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 7-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 7-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 October 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>12/2/03</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

The term "best described" in claim 11 is a relative term which renders the claim indefinite. The term "best described" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 7, 8, 12, 14, and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Shirkhanzadeh (US Pat. No. 5211833). Shirkhanzadeh discloses the following regarding claim 7: an implant element for incorporation in bone tissue comprising a surface in contact with the bone tissue (col. 1, lines 14-19), wherein the surface comprises a machined titanium surface (col. 3, lines 50-68) that is electrochemically anodized (col. 4, lines 17-41) to provide a titanium oxide coating from 10 nm to 180 nm as measured by Auger electron spectroscopy (col. 3, lines 31-35).

Shirkhanzadeh discloses the following regarding claim 8: the implant element of claim 7 wherein the machined titanium surface includes machined grooves with a width of 1 to 10 microns (col. 3, lines 31-35).

Shirkhanzadeh discloses the following regarding claim 12: a method of making a titanium element for incorporation in bone tissue comprising providing a machined titanium

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substrate (col. 3, lines 50-68) with machined grooves with a width of 1 to 10 microns (col. 5, lines 67-68), and electrochemically anodizing (col. 4, lines 17-41) the titanium substrate to provide a titanium oxide surface with a titanium oxide coating from 10 nm to 180 nm as measured by Auger electron spectroscopy (col. 3, lines 31-35).

Shirkhanzadeh discloses the limitations of claims 14 and 15 in col. 4, lines 52-56.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shirkhanzadeh.

Shirkhanzadeh discloses the claimed invention except for a titanium surface with a  $R_{rms}$  of 41 nm. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have a titanium surface with a  $R_{rms}$  of 41 nm, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, USPQ 215 (CCPA 1980).

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shirkhanzadeh in view of Shetty et al. (US Pat. No. 5308412). Shirkhanzadeh discloses the invention substantially as claimed, however, Shirkhanzadeh does not disclose a carbon atomic percent of at least 34. Shetty et al. teaches this percentage in col. 1, line 55 through col. 2, line 9 and Tables I and II because the more carbon that is lost, the weaker the initial surface will be. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have a

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carbon atomic percent of at least 34 in order to preserve the surface hardness to avoid substantial losses in fatigue strength or wear resistance.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shirkhanzadeh in view of Ong et al. (US Pat. No. 5645900). Shirkhanzadeh discloses the invention substantially as claimed, however, Shirkhanzadeh does not disclose that the titanium coating is amorphous or non-crystalline. Ong et al. teaches an amorphous titanium oxide coating in the abstract for the purpose of protecting the metal substrates from harsh environments. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have an amorphous titanium oxide coating in order to protect the underlying metal substrates from harsh environments.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shirkhanzadeh in view of Tanaka et al. (US Pat. No. 5613849). Shirkhanzadeh discloses the invention substantially as claimed, however, Shirkhanzadeh does not disclose the electrochemical anodization conducted in acetic acid. Tanaka et al. teaches this practice in col. 7, line 61 through col. 8, line 6 for the purpose of utilize the acetic acid's property as an organic binder. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use acetic acid in the electrochemical anodization in order to utilizing the acetic acid's property as an organic binder

### ***Conclusion***


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ann Schillinger whose telephone number is (571) 272-6652. The examiner can normally be reached on Mon. thru Fri. 9 a.m. to 4 p.m..

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Corrine McDermott can be reached on (571) 272-4754. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Ann Schillinger  
April 24, 2007

  
**ALVIN J. STEWART**  
**PRIMARY EXAMINER**